# The INDIANA LIMESTONE INDUSTRY

One of America's important basic industries in the building construction field producing stone that has created Buildings of Prestige Everywhere.

SOUVENIR FOLDER

of the Trip to Quarries and Mills of the Indiana Limestone District by The Governors Conference party, on June 3rd, 1931.

*Compliments of* BUILDING STONE ASSOCIATION OF INDIANA, INC.
Representing the Quarry Operators and Cut Stone Contractors of Monroe and Lawrence Counties

Headquarters of Association
Bloomington
Indiana

IMPORTANT FACTS ABOUT INDIANA'S LIMESTONE INDUSTRY

THE production and fabrication of Indiana Limestone constitutes a most important factor in the building industry of America for the entire construction industry is largely dependent upon the quarries producing this fine, easily-worked building stone for the exterior facing and embellishment of buildings at moderate cost.

FROM the quarries of this limestone district something over 60 per cent of all of the finished building stone used throughout the entire United States is shipped, in addition to which a considerable volume of this stone is also shipped to fabricating plants in Canada.

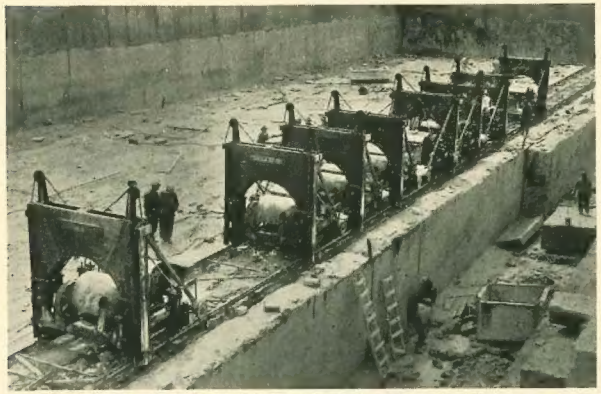
WHILE the quarries are located in two counties of Indiana, the industry is in reality a national one, as only a little over one-third of all of the stone quarried is cut and fabricated by the numerous large cutting plants located in the quarry district, the remainder being shipped out in rough-block and sawed-slab form to the cutting plants and small stone yards in all of the larger cities and most of the smaller towns throughout the country.

THE working of Indiana Limestone is thus interwoven with building construction everywhere in America. No other material enjoys such a varied and wide range of usage or such general distribution from coast to coast.

ITS USAGE alike serves the Administrative, Religious, Scholastic, Commercial and Industrial branches of the nation's activities. The numerous Post Offices, and other Federal, State and Municipal buildings constructed of this stone have made it a veritable part of the building fabric of the nation.

THE present-day wide usage of Indiana Limestone in buildings of all types is based primarily upon its outstanding merit as an exterior building material from three basic standpoints.

1. Its generally recognized structural merit and



QUARRY VIEW SHOWING A SERIES OF 8 ELECTRIC DRIVEN CHANNELLING MACHINES WORKING BACK AND FORTH ON THE SAME TRACK PUTTING DOWN CHANNEL GROOVES FOR A CUT OF STONE 10 FEET IN DEPTH.

fine weathering properties. By "structural merit" is meant, physical characteristics which give it comparatively high uniform strength, rendering it in every way suitable for usage in the various structural parts of building exteriors. By "weathering properties" is meant its ability to satisfactorily withstand over an indefinitely long period of time the destructive agencies of atmospheric exposure—rain, snow, frost, heat, cold, and the cycles of seasonal change in temperature and moisture conditions, without deterioration in either structural value or appearance.

QUARRY VIEW SHOWING ROUGH BLOCK OF STONE AS QUARRIED FOR HUGE MONOLITHIC COLUMN. THIS BLOCK IS 6'0" x 6'0" x 38'0" AND HAS A WEIGHT OF APPROXIMATELY 150 TONS.

2. Its aesthetic appeal;—that is, the pleasing, light color-tone and texture of the stone, which gives a distinctive characteristic richness and dignity to the appearance of buildings and other structures built of it. There is no other building stone that gives quite so handsome an effect, nor that can with equal assurance be counted upon to MAGNIFY the BEAUTY of the ARCHITECT'S DESIGN.

A distinct factor in its favor is its fine weathering properties and the facility with which it retains that appearance over a long period of time. Hence, architects and experienced builders invariably welcome the opportunity to design for and build of this stone, a material of lasting beauty.

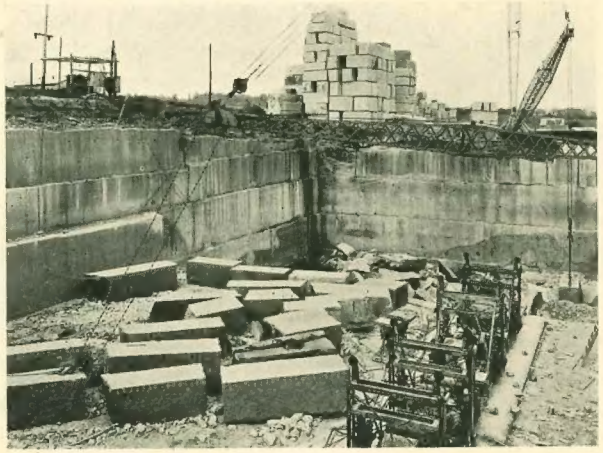
3. The facility with which it can be quarried and worked by various machine processes, resulting in distinctly economical production. This is possibly the most important of all of the three outstanding factors that make Indiana Limestone the preferred building material for fine buildings, truly THE NATION'S BUILDING STONE.

GENERAL VIEW OF INTERIOR OF CUTTING PLANT IN WHICH 70-FOOT TRAMWAY HANDLES THE STONE SLABS AND BLOCKS FROM STACK PILES TO PLANERS, SAWS AND OTHER CUTTING MACHINES AND LATER HANDLES THE LOADING OF FINISHED STONEWORK ONTO RAILROAD CARS.

THERE is no other building stone, or other building material for that matter, that offers so much in the way of structural value and handsome appearance at such moderate cost. Thus, buildings constructed of it possess the highest value for every dollar expended upon their exteriors and in the elaboration and embellishment of these with architectural detail, since the ornamentation can be executed, in this material, at reasonable cost. The elaboration and enrichment of buildings with carving and ornamental work, however, is entirely unnecessary, since broad, plain surfaces of Indiana Limestone present a rich and handsome appearance, a fact that is clearly demonstrated by the many buildings of comparatively simple design constructed of it that possess an outstanding distinction and dignity of appearance, numerous examples of which can be cited among the fine administrative buildings of America: — Capitols, Court Houses, City Halls and other buildings.

VIEW OF STORAGE YARD. TRAMWAY 1,000 FEET LONG UNDER WHICH A THOUSAND CAR LOADS OF STONE BLOCKS CAN BE STORED READY FOR SHIPMENT TO THE CUTTING PLANTS.

THE selection of Indiana Limestone for administrative buildings therefore assures the tax paying commonwealth of the highest value for every dollar expended, just as it assures to the owners of commercial structures a sound investment value of the highest type, and in school and college buildings provides the embellishment of these with an architectural character that gives a pleasing appearance and distinction to what would otherwise be plain walls of brick. Indiana Limestone truly creates BUILDINGS of PRESTIGE EVERYWHERE.



QUARRY VIEW SHOWING THE QUARRIED STONE SPLIT UP INTO MILL BLOCKS READY FOR LIFTING OUT TO THE STACKING PILE.

THE QUARRYING OF STONE for building usage has ever presented a spectacle of outstanding interest. There is a distinctly romantic appeal in the converting of the rough, rock masses of nature into structures that are to house the varied activities of mankind, ranging from his habitations on up to the temples or churches in which he worships and the halls of legislative enactment and justice in which his laws are made and administered.

THE OOLITIC LIMESTONE DISTRICT of Monroe and Lawrence Counties, Indiana, is especially interesting in view of the great developments that have taken place here and the huge scale on which the quarrying and fabrication operations are carried on. These limestone quarries, which in the aggregate are the largest in the world, present a spectacle that must be seen to be appreciated, for here is found and produced the stone of which so many of America's finest buildings are constructed. A list of these buildings would fill a large volume and only a few of the more important and outstanding structures that are known to everyone are pictured and listed elsewhere in this folder.

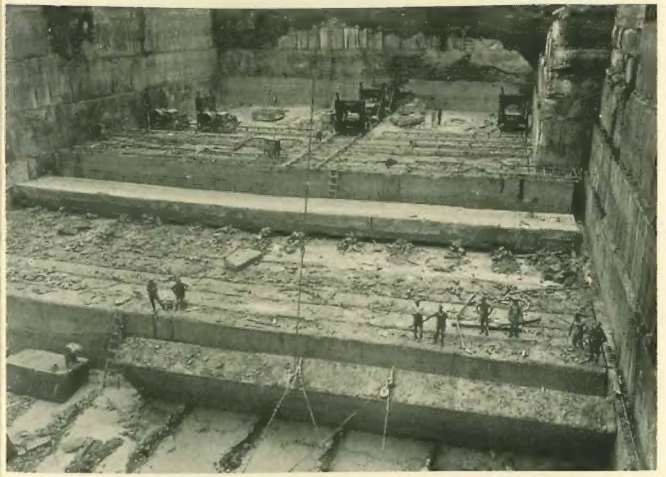
THE production of Indiana Limestone, in step with modern industrial developments, is now carried on almost entirely by machine operations, steel, steam and electric power having almost entirely replaced the arduous manual labor of earlier days.

### QUARRYING PROCEDURE

INDIANA LIMESTONE is quarried by the channelling process, the procedure of which is as follows:

*First*, the overburden of earth and waste rock of another formation which overlies the Oolitic Limestone that is to be quarried for building purposes, is removed by the most suitable method. Where this overburden consists only of earth it is washed away by water from a high pressure pipeline driven through a specially constructed nozzle mounted on a Tripod. Where the overburden consists both of earth and rock, a combination of this hydraulic excavating and of drilling and blasting away the waste rock is employed. After blasting, the waste rock is removed either by buckets and cableways or by steam shovel.

*Second*, after the oolitic limestone ledge has thus been uncovered by the removal of all overlying earth and rock, the process of quarrying building stone consists of sinking channel-grooves into the ledge by steam or electric driven channelling machines.



QUARRY VIEW SHOWING THE TURNING OVER OF A HUGE CUT OF STONE IN THE FOREGROUND. THIS CUT, ABOUT 4 FEET WIDE AND 11 FEET DEEP AND 67 FEET IN LENGTH, HAS WEIGHT OF APPROXIMATELY 250 TONS. ABOVE, IN THE CENTER OF THE PICTURE, A CUT THE FULL LENGTH OF THE QUARRY OPENING IS SHOWN. THIS CUT IS ABOUT 4 FEET WIDE BY 11 FEET DEEP AND 115 FEET IN LENGTH, HAS WEIGHT OF APPROXIMATELY 500 TONS.

These grooves, about 2 inches in width, are sunk to a depth of 8, 10 or 12 feet, according to the depth of the floor that it is desired to quarry at a given operation. These channel grooves are customarily spaced slightly over 4 feet apart, or further apart where wider blocks of stone are required for special purposes. In opening a new floor, however, the first row of channel cuts are spaced about 8 feet apart and a series of cross cuts spaced about 2 feet apart sunk between these channels, this the so-called "key block" row. A few of these smaller blocks are then broken off from the ledge below by wedges and removed, making a suitable opening in the floor from which the quarrying operations can be carried on.

*Third*, a series of holes are then drilled into the stone about 6 or 8 inches apart opposite the base of the channel cut and steel wedges driven into these holes between a pair of steel feathers, which operation splits the "cut" of stone from the ledge below. The "cut" is then laid over on to its side with the aid of rigging of wire ropes and pulleys connected to the fall line of derrick.

THESE cuts of stone, customarily around 4 feet in width and 8 to 12 feet in depth will usually have a length of 40 to 60 feet but sometimes have a length of from 80 to 100 feet, thus weighing hundreds of tons. (See illustration above.) On another page is shown the quarrying of blocks 6 feet square by 38 feet long for the shafts of large monolithic columns.

*Fourth*, after the cuts of stone have been laid on their side on the quarry floor, as already described, the next operation is to drill and split these huge cuts into "mill block" or "Dimension stone" sizes for convenient transportation and handling in the cutting and fabricating plants. The usual size of mill blocks is around 3′6″ x 4′0″ x 8′0″ to 12′0″ in length. When the cut has thus been split up into blocks these are then lifted out of the quarry by derrick and loaded onto flat cars for transport to the mills and cutting yards.

### CUTTING AND FABRICATION

IN the working of Indiana Limestone various machine processes are employed. Excepting in the case of the large blocks that are required for special purposes, the first operation is the sawing up of the rough blocks into slabs of the various thicknesses required for the different parts of the exterior of the building or other structure. This sawing is usually done by the gang saw, which consists of a series of soft steel blades mounted on a reciprocating frame, which works back and forth across the stone placed upon flat-car-platforms that are wheeled under this machine, sawing through the stone by using an abrasive mixture of sharp sand and water, or in some instances using a mixture of crushed steel or steel shot, sand and water.

WHEN the stone has been sawed into slabs, these slabs are sawed up into the widths required, generally with a circular diamond point saw. This machine having a circular saw blade of steel, ranging from 2 feet to 8 feet in diameter, has a series of cast steel teeth inserted in slots around its rim carrying cutting diamond points, or in some cases these saws have carborundum teeth similarly inserted around the rim. The stone thus cut to thickness and width is also cut to the lengths required by similar circular saws.

AFTER the rough blocks have thus been sawed to the shapes required for the various parts of the work, these pieces are either planed smooth, or are moulded or milled in the manner required to produce the various details of the building's exterior, or in the case of columns or balusters, are turned to the required form in a lathe.

WHEN these basic fabricating operations have been performed, the ornamental detail, carving and enrichment forming the embellishment of the work, is then done by hand with the aid of air-hammer operated chisels. Several of these cutting operations are illustrated on another page of this folder.

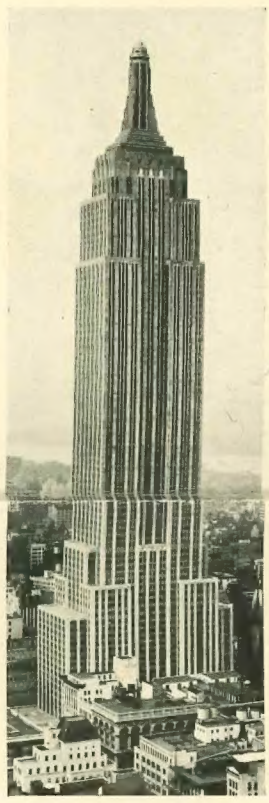
# *The Governors' Conference*

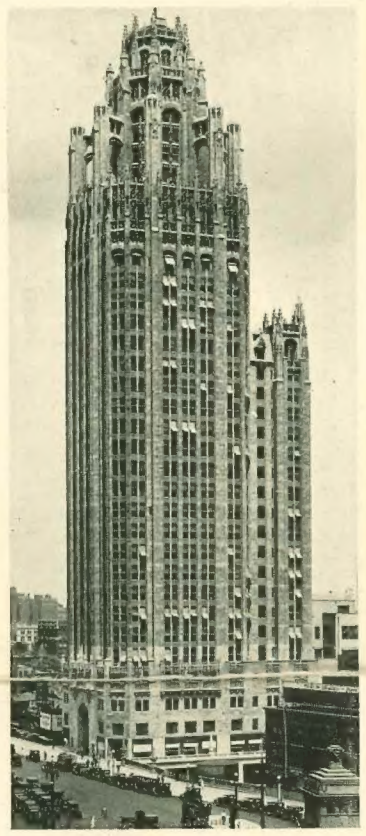
Meeting of 1931, held at French Lick Springs, Indiana. Governor Harry G. Leslie of Indiana and Associates, acting hosts.

| | |
|---|---|
| Alabama | Gov. B. M. Miller |
| Arizona | Gov. George W. P. Hunt |
| Arkansas | Gov. Harvey Parnell |
| California | Gov. James Rolph, Jr. |
| Colorado | Gov. Wilbur H. Adams |
| Connecticut | Gov. Wilbur L. Cross |
| Delaware | Gov. C. Douglass Buck |
| Florida | Gov. Doyle E. Carlton |
| Georgia | Gov. L. G. Hardman |
| Idaho | Gov. C. Ben Ross |
| Illinois | Gov. Louis L. Emmerson |
| Indiana | Gov. Harry G. Leslie |
| Iowa | Gov. Dan W. Turner |
| Kansas | Gov. Harry H. Woodring |
| Kentucky | Gov. Flem D. Sampson |
| Louisiana | Gov. H. P. Long |
| Maine | Gov. William T. Gardiner |
| Maryland | Gov. Albert C. Ritchie |
| Massachusetts | Gov. Joseph B. Ely |
| Michigan | Gov. Wilbur B. Brucker |
| Minnesota | Gov. Floyd B. Olson |
| Mississippi | Gov. Theodore G. Bilbe |
| Missouri | Gov. Henry S. Caulfield |
| Montana | Gov. J. E. Erickson |
| Nebraska | Gov. Charles Bryan |
| Nevada | Gov. Frederick B. Balsar |
| New Hampshire | Gov. John G. Winant |
| New Jersey | Gov. Morgan F. Larson |
| New Mexico | Gov. Arthur Seligman |
| New York | Gov. Franklin Roosevelt |
| North Carolina | Gov. O. Max Gardner |
| North Dakota | Gov. George F. Shafer |
| Ohio | Gov. George White |
| Oklahoma | Gov. William Murray |
| Oregon | Gov. Julius S. Meier |
| Pennsylvania | Gov. Gifford Pinchot |
| Rhode Island | Gov. Norman C. Case |
| South Carolina | Gov. Ibra G. Blackwood |
| South Dakota | Gov. Warren E. Green |
| Tennessee | Gov. Henry Horton |
| Texas | Gov. Ross S. Sterling |
| Utah | Gov. George H. Dern |
| Vermont | Gov. Stanley C. Wilson |
| Virginia | Gov. John G. Pollard |
| Washington | Gov. Roland H. Hartley |
| West Virginia | Gov. William G. Conley |
| Wisconsin | Gov. Philip LaFollette |
| Wyoming | Gov. A. N. Clark |

---

| | |
|---|---|
| Alaska | Gov. George A. Parks |
| Guam | Com. Willis W. Bradley, Jr. |
| Hawaii | Gov. Lawrence M. Judd |
| Panama Canal Zone | Col. Harry Burgess |
| Phillipines | Gov. Dwight F. Davis |
| Porto Rico | Gov. Theodore Roosevelt |
| Samoa | Capt. G. S. Lincoln |
| Virgin Islands | Gov. Paul M. Pearson |





MONON RAILROAD

ELLETTSVILLE ROAD

STATE ROAD "37"

ILLINOIS CENTRAL RAILROAD

STATE ROAD "46"

STATE ROAD "45"

ROCKPORT ROAD

I. C. R. R.

STATE ROAD "37 To BEDFORD

M. R. R.

M. R. R.

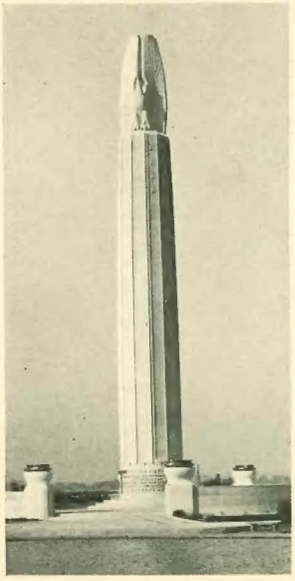
MONROE COUNTY

N

W E

S

# LAWRENCE COUNTY



STATE ROAD #37

MONON RAILROAD

C. M. & ST. P. R.R.

MONON R.R.

ROAD 37

C. M. & ST. P. R.R.

M.R.R.

TO MITCHELL

69 66 65 70 67 71 68 72 72 72 72 73 73 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110

# List of QUARRIES and MILLS of the Oolitic Limestone District of Monroe and Lawrence Counties, Indiana, Shown on Map

1. Wallis Stone Co.'s Mill.
2. Alexander King Stone Co.'s Quarry.
3. Old Kessler Quarry, from which Circle Monument at Indianapolis was taken.
4. Swenson Stone Co.'s Mill and Quarry.
5. Indiana Limestone Co.'s Stinesville Quarry
6. Second Kessler Quarry.
7. Matthews Brothers Co.'s Mill.
8. Harding & Cogswell, Inc., Mill.
9. Perry Stone Co.'s Mill.
10. A. J. Thompson Stone Co.'s Mill.
11. Bloomington Limestone Co.'s Indiana-Oolitic Mill.
12. Ellettsville Stone Co.'s Mill.
13. Nutter's Wampler Quarry.
14. Bloomington Limestone Co.'s Indiana-Oolitic Quarry.
15. Reed Powers Cut Stone Co.'s Quarry.
16. B. G. Hoadley Quarries, Inc., Mill.
17. B. G. Hoadley Quarries, Inc., Murray.
18. Bloomington Limestone Co.'s (New) Johnson Quarry.
19. Bloomington Limestone Co.'s Crowe-Hunter-Valley Quarry.
20. Hunter Brothers Quarry and Mill.
21. Indiana Limestone Co.'s Hunter Valley group. This embraces the former Consolidated Hunter Valley Quarry and Mill, the former Crescent Stone Co.'s Quarry and Mill and the former Star Stone Co.'s Quarry and Mill.
22. Shawnee Stone Co.'s Central Mill.
23. Walker Brothers Mill.
24. Indiana Limestone Co.'s American Mill.
25. Mutual Oolitic Cut Stone Co.'s Mill.
26. J. M. Hoadley, Inc., Mill.
27. Indiana Limestone Co.'s Tribune Mill.
28. Indiana Limestone Co.'s Indiana Mill.
29. Indiana Limestone Bloomington Mill.
30. Alexander King Stone Co.'s Mill.
31. Bloomington Limestone Co.'s Cline Mill.
32. Indiana Limestone Co.'s Hoosier Mill.
33. Indiana Limestone Co.'s Radley Quarry and Mill.
34. Bloomington Limestone Skinner Mill.
35. Indiana Limestone Co.'s Pitt Mill.
36. Indiana Limestone Co.'s University Quarry.
37. Bloomington Limestone Co.'s Maple Hill Quarry and Mill.
38. The Carl Furst Co.'s Quarry.
39. H. A. Woolery & Son Mill.
40. H. A. Woolery & Son Quarry.
41. Indiana Limestone Co.'s Crane quarry tract.
42. Monon Stone Co.'s Mill.
43. Monon Stone Co.'s Quarry.
44. H. A. Woolery & Son Mill.
45. Indiana Limestone Co.'s Red Hog Quarry.
46. Indiana Limestone Co.'s National Quarry.
47. Empire Stone Co.'s Quarry and Mill.
48. Indiana Limestone Co.'s Adams Quarry.
49. Indiana Limestone Co.'s Reed Quarry.
50. Indiana Limestone Co.'s Bowman King Co. Quarry.
51. Indiana Limestone Co.'s Mathers Quarry and Mill.
52. Bloomington Limestone Co.'s (Old) Johnson Quarry and Mill.
53. Hoadley Brothers Quarry.
54. Sare-Hoadley Co.'s Quarry and Mill.
55. Indiana Limestone Co.'s Clear Creek Mill.
56. Indiana Limestone Co.'s Crown Quarry.
57. Indian Hill Stone Co.'s Mill.
58. Indian Hill Stone Co.'s Quarry.
59. Shawnee Stone Co.'s Quarry.
60. Independent Limestone Co.'s Quarry.
61. Bloomington Limestone Kelley Quarry.
62. Fluck Stone Co.'s Mill.
63. Victor Oolitic Co.'s Quarry and Mill.
64. Reed Powers Cut Stone Co.'s No. 17-Victor Quarry.
65. Indiana Limestone Co.'s Fanning Mill.
66. Indiana Limestone Co.'s Peerless Quarry.
67. Indiana Limestone Co.'s Peerless Quarry.
68. Ingalls Stone Co.'s Peerless Quarry.
69. Indiana Limestone Furst Kerber Quarry.
70. Indiana Limestone Co.'s Kerber Mill.
71. Indiana Limestone Needmore Quarry.
72. Indiana Limestone P. M. & B. Quarries.
73. Indiana Limestone Co.'s Walsh Quarries.
74. Indiana Limestone Co.'s Joyner Mill.
75. Indiana Limestone Co.'s Hoosier Mill.
76. Indiana Limestone Co.'s Ward Mill.
77. Indiana Limestone Co.'s Kurrie Quarry.
78. Indiana Limestone Co.'s Ingalls Robin Roost Quarry.
79. Indiana Limestone Co.'s Dark Hollow Quarry group.
80. Indiana Limestone Co.'s Wilson Mill.
81. Indiana Limestone Co.'s McMillan Mill.
82. Indiana Limestone Co.'s Baalbek Quarry.
83. Indiana Limestone Co.'s Eureka Quarry.
84. Indiana Limestone Co.'s Allen Mill.
85. Edward Edinger Co.'s Mill.
86. Indiana Limestone Co.'s Struble Mill.
87. Indiana Limestone Co.'s Walters Mill.
88. Indiana Limestone Co.'s Salem Mill.
89. Indiana Limestone Co.'s Brooks Mill.
90. Indiana Limestone Co.'s Dickinson Mill.
91. Indiana Limestone Co.'s Dugan Mill.
92. Indiana Limestone Co.'s A. W. S. Mill.
93. Indiana Limestone Co.'s Donnelly Mill.
94. Indiana Limestone Co.'s Donato Mill.
96. Indiana Limestone Co.'s Shea Mill.
97. Indiana Limestone Co.'s McGrath Mill.
98. Indiana Limestone Co.'s Furst Mill.
99. J. P. Falt Co.'s Mill.
100. Bedford Cut Stone Co.'s Mill.
101. Indiana Limestone Black Diamond Mill.
102. Ingalls Stone Co.'s Mill No. 1.
103. Ingalls Stone Co.'s Mill No. 2.
104. Indiana Limestone Co.'s Rowe Mill.
105. The Carl Furst Co.'s Mill.
106. Ingalls Stone Co.'s Mill No. 3.
107. Indiana Limestone Imperial Quarry.
108. Indiana Limestone Co.'s Bluehole Mill.
109. Heltonville Limestone Co.'s Mill.
110. Heltonville Limestone Co.'s Quarry.